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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/785,762	02/16/2001	Paul Melman	12828-002001	2973

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BOSTON, MA 02110

EXAMINER

RAHLL, JERRY T

ART UNIT	PAPER NUMBER
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2874

DATE MAILED: 06/13/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/785,762

Applicant(s)

MELMAN ET AL.

Examiner

Jerry T Rahll

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on _____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-46 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 19-46 is/are allowed.
- 6) ☒ Claim(s) 1-5, 7, 9-13, 15 and 17 is/are rejected.
- 7) ☒ Claim(s) 6, 8, 14, 16 and 18 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 February 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 5.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. The drawings submitted have been reviewed and determined to facilitate understanding of the invention. The drawings are accepted as submitted.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1 and 9 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 6,373,577 to Bräuer et al.
4. Bräuer et al. describes a detection device having a set of waveguides (2) with at least two waveguides, metallic films (3) covering a portion of the waveguides and supporting a surface plasmon wave and ligand layers (Column 1 Lines 52-57) contacting the metallic films for binding analytes on the metallic films (see Column 4 Lines 2-39 and Figures 1a-2).
5. Claims 9, 11, 12, 15 and 17 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 6,432,364 to Negami et al.
6. Negami et al. describes a detection device having a set of waveguides (7b) with at least two waveguides and metallic films (15) covering a portion of the waveguides and supporting a surface plasmon wave (see Column 10 Lines 1-65, Column 11 Line 60- Column 12 Line 41,

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Column 25 Line 48-Column 26 Line 22, Column 35 Line 63-Column 36 Line 57 and Figures 1, 4, 10, 79 and 83).

7. Further, Negami et al. describes the waveguides on a substrate (5) having a first material (7) with a surface covered by a distinct thickness of a second material (9) with an index of refraction lower than the first material. Negami et al. does not specifically describe the first material (7) as optically transparent. However, the first material is described to transmit light. In order to transmit light, the first material inherently must be optically transparent.

8. Further, Negami et al. describes the metallic film as gold or silver (see Column 10 Lines 48-51).

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

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11. Claims 1, 3-5 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Negami et al. in view of Bräuer et al.
12. Negami et al. describes a detection device having a set of waveguides (7b) with at least two waveguides and metallic films (15) covering a portion of the waveguides and supporting a surface plasmon wave (see Column 10 Lines 1-65, Column 11 Line 60- Column 12 Line 41, Column 25 Line 48-Column 26 Line 22, Column 35 Line 63-Column 36 Line 57 and Figures 1, 4, 10, 79 and 83).
13. Negami et al. does not describe ligand layers contacting the metallic films for binding analytes.
14. Bräuer et al. describes a detection device having a set of waveguides (2) with at least two waveguides, metallic films (3) covering a portion of the waveguides and supporting a surface plasmon wave and ligand layers (Column 1 Lines 52-57) contacting the metallic films for binding analytes on the metallic films (see Column 4 Lines 2-39 and Figures 1a-2).
15. Negami et al. and Bräuer et al. are analogous art because they are from the same field of endeavor, SPR sensors.
16. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use the ligand layers of Bräuer et al. on the metallic films described by Negami et al. to allow to bind analytes to allow for biochemical analysis (see Bräuer et al. Column 1 Lines 50-58). Therefore, it would have been obvious to one of ordinary skill in the art to combine Negami et al. with Bräuer et al. to obtain the invention as specified in Claim 1.
17. Further, Negami et al. describes the waveguides on a substrate (5) having a first material (7) with a surface covered by a distinct thickness of a second material (9) with an index of

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refraction lower than the first material. Negami et al. does not specifically describe the first material (7) as optically transparent. However, the first material is described to transmit light. In order to transmit light, the first material inherently must be optically transparent.

18. Further, Negami et al. describes the metallic film as gold or silver (see Column 10 Lines 48-51).

19. Neither Negami et al. nor Further, Negami et al. describes the waveguides on a substrate (5) having a first material (7) with a surface covered by a distinct thickness of a second material (9) with an index of refraction lower than the first material. Negami et al. does not specifically describe the first material (7) as optically transparent. However, the first material is described to transmit light. In order to transmit light, the first material inherently must be optically transparent.

20. Further, neither Negami et al. nor Bräuer et al. specifically describe the first material as one of the materials described in Claim 5. However, Negami et al. describes the first material (referred to as the core) as made of a material such as glass (see Column 20 Lines 7-8). It is well-known in the art that silicon dioxide is a common glass used for the production of waveguides. Therefore, it would have been obvious to one of ordinary skill in the art to make the first material described by Negami et al. of silicon dioxide.

21. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Negami et al.

22. Negami et al. does not specifically describe the first material as one of the materials described in Claim 5. However, Negami et al. describes the first material (referred to as the core) as made of a material such as glass (see Column 20 Lines 7-8). It is well-known in the art that silicon dioxide is a common glass used for the production of waveguides. Therefore, it

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would have been obvious to one of ordinary skill in the art to make the first material described by Negami et al. of silicon dioxide.

23. Claims 2 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bräuer et al. as applied to claim 1 and 9 above, and further in view of U.S. Patent No. 5,359,681 to Jorgenson et al.

24. Bräuer et al. describes a detection device as described above. Bräuer et al. does not describe the waveguides in optical fibers.

25. Jorgenson et al. describes a fiber optic detection device with a surface plasmon supporting metal layer in contact with an exposed portion of an optical fiber core (see Column 8 Line 60- Column 9 Line 16 and Figures 2-4).

26. Bräuer et al and Jorgenson et al. are analogous art because they are from the same field of endeavor, SPR sensors. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to allow for maneuverability of the testing apparatus. Therefore, it would have been obvious to combine the optical fiber waveguide of Jorgenson with the detection device of Bräuer et al. to obtain the invention as specified in Claim 2.

27. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Negami et al. as applied to claim 9 above, and further in view of U.S. Patent No. 5,359,681 to Jorgenson et al.

28. Negami et al. describes a detection device as described above. Negami et al. does not describe the waveguides in optical fibers.

29. Jorgenson et al. describes a fiber optic detection device with a surface plasmon supporting metal layer in contact with an exposed portion of an optical fiber core (see Column 8 Line 60- Column 9 Line 16 and Figures 2-4).

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30. Negami et al and Jorgenson et al. are analogous art because they are from the same field of endeavor, SPR sensors. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to allow for maneuverability of the testing apparatus. Therefore, it would have been obvious to combine the optical fiber waveguide of Jorgenson with the detection device of Negami et al. to obtain the invention as specified in Claim 10.

Allowable Subject Matter

31. Claims 6, 8, 14, 16 and 18 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

32. Claims 19-46 are allowed.

33. Claims 6 and 14 describe the second material as magnesium fluoride.

34. Claims 8 and 18 describe the metallic films describe the metallic films covering the entire length of the waveguides.

35. Claim 16 describes the waveguides within the set of waveguides having a distinct size and shape.

36. Claims 19-46 describe a method for detecting a shift of a surface plasmon resonance curve comprising transmitting a plurality of light beams through at least one waveguide on a detection device having a metallic film covering a portion of the waveguides measuring the intensity of a plurality of light beams transmitted through the waveguides, computing a first calculated difference between the intensity of two beams, computing a second calculated difference between the intensity of two beams and comparing the first and second calculated

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differences, where a difference the first and second calculated differences indicates a shift of the surface plasmon resonance.

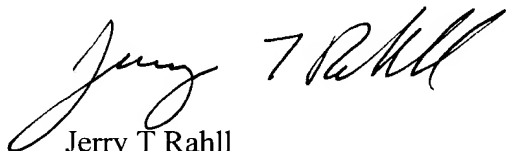
Conclusion

37. Prior art documents submitted by applicant in the Information Disclosure Statement filed on 06 June 2001 have all been considered and made of record (note the attached copy of form PTO-1449).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jerry T Rahll whose telephone number is (703) 306-0031. The examiner can normally be reached on M-F (8:00-5:30), with alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rodney Bovernick can be reached on (703) 308-4819. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.


Jerry T Rahll
June 10, 2003


AKM ENAYET ULLAH
PRIMARY EXAMINER